The Ballarat Naturalist

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This beautiful raptor is a Grey Goshawk *Accipiter novaehollandiae* with all-white plumage, otherwise know as the White Goshawk.

There are two distinct forms or 'morphs" of the Grey Goshawk, a grey one and a white one. They were once considered to be quite separate species until a mixed pair was seen nesting together.
In such circumstances, the offspring are usually either grey or white. Intermediates between the forms are exceedingly rare. The young birds are usually fed on a diet of mammals, especially rabbits, possums and bats, as well as birds, usually caught by the male, but fed to the young by the female.

The Grey Goshawk is a medium-sized bird of prey. The grey morph has a grey head and upperparts, with white underparts barred grey on the chest. The rounded wings are grey above, white below, and have darker wingtips. The medium length tail is grey above and white below, barred grey. The white morph is pure white all over and is often known as the White Goshawk. Both morphs have a dark red eye and yellow legs and feet.

This bird was photographed by Carol Hall at Clarkesdale Bird Sanctuary on July 8, 2020.

OUCH! But who's saying it?

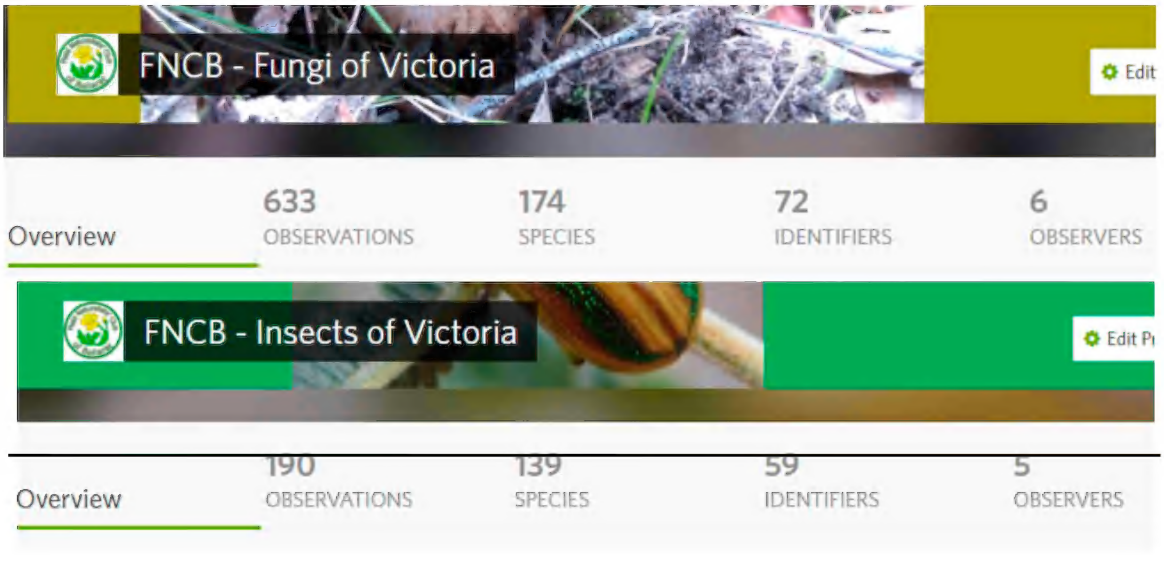
We all know how painful a bee sting can be, but consider the bee! Stinging is their last act designed to protect the hive. The problem is that honeybees have a barbed stinger which stays in the skin once the toxin has been delivered. Bees deliver an apitoxin which is a mixture of chemicals including histamine. It is accompanied by the release of alarm pheromones, a process which is accelerated if the bee is fatally injured. The release of alarm pheromones near a hive may attract other bees to the location, where they will likewise exhibit defensive behaviours until there is no longer a threat, typically because the victim has either fled or been killed.
Bee stings are acidic, compared to wasp stings which are alkaline, so the body's reaction to a bee sting may be very different from its reaction to a wasp sting.

Bees with barbed stingers can often sting other insects without harming themselves. Queen honeybees and bees of many other species, including bumblebees and many solitary bees, have smoother stingers with smaller barbs, and can sting mammals repeatedly.

The stinger consists of three parts: a stylus and two barbed slides (or lancets), one on either side of the stylus. The bee does not push the stinger in but it is drawn in by the barbed slides. The slides move alternately up and down the stylus so when the barb of one slide has caught and retracts, it pulls the stylus and the other barbed slide into the wound.
When the other barb has caught, it also retracts up the stylus pulling the sting further in. This process is repeated until the sting is fully in and even continues after the sting and its mechanism is detached from the bee's abdomen.
When a female honey bee stings a person, it cannot pull the barbed stinger back out, but rather leaves behind not only the stinger, but also part of its abdomen and digestive tract, plus muscles and nerves. This massive abdominal rupture kills the honey bee. Honey bees are the only bees to die after stinging.

Incidentally, apitoxins are under preliminary research for their potential biological effects, such as in cancer. This may turn out to be just one more way that bees benefit us humans.

"Nat Stats" from iNaturalist Projects



Images from Proposed Creswick Mountain Bike Trail area.

Unauthorised Bike Trail on historic Russell's Water Race

Dam on proposed trails of Ridge racer Zone. The wall would need a lot of strengthening to avoid damage from traffic from 4 major bike trails proposed.

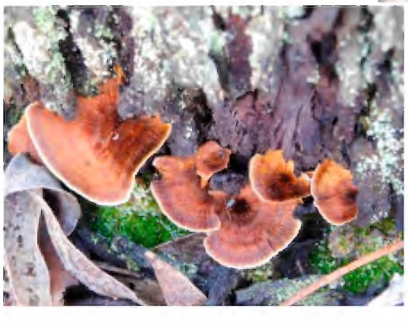
Tree cutting on unauthorised Bike trail in Trails area.

The Rat Nats—Juniors Group

July saw a huge spike in the number of people getting involved I some small way with Junior Field Nats by joining our Facebook Group. It seems many Ballarat families like the idea of a page devoted to nature and the great outdoors generally. We hope that their interest will translate to membership of the Club in the future. In the meantime, we attempted to hold a couple of short fungi walks in early July, but the weather interfered a little bit, and some people were struggling with colds as well. Thanks to those who were able to come out to Stringybark to check out the fungi on show.

Lichenomphalia chromacea

Kids (and parents) enjoying the forest and fungi.



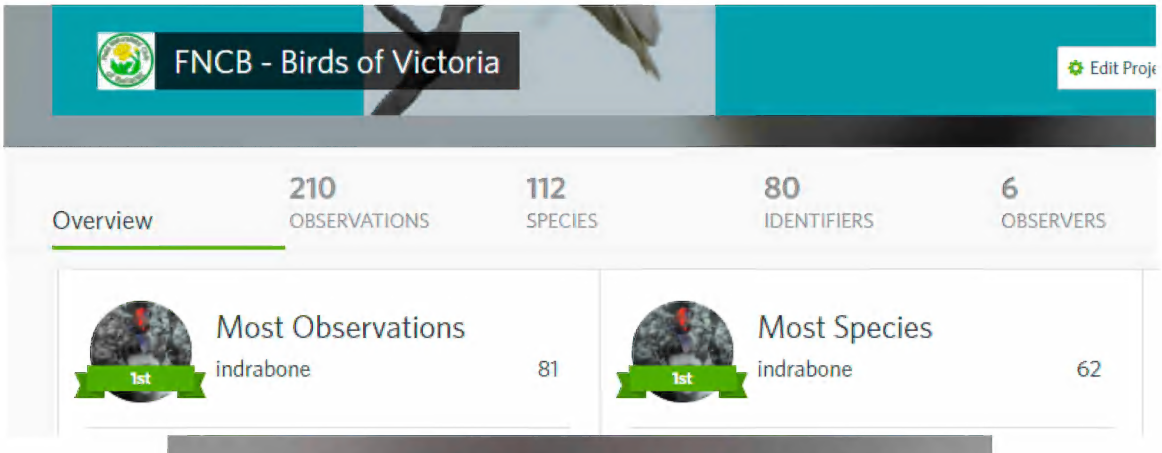
⇦ *Coltricia* sp.

⇨ *Postia pelliculosa*

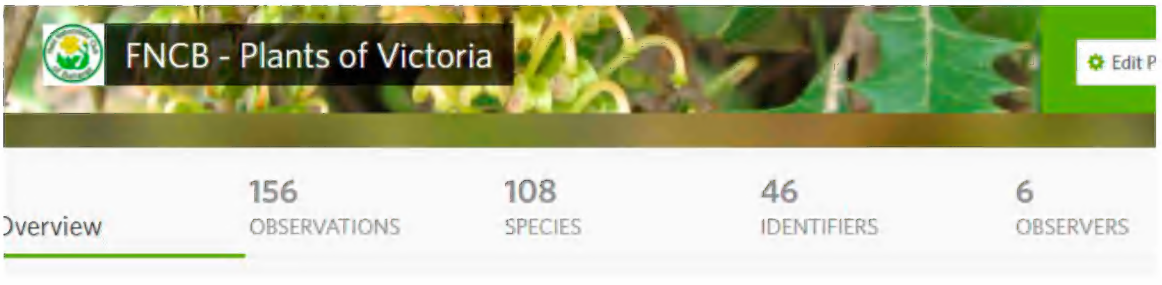
We also had a visit from our local Fox who was spotted about 10m from our front door, foraging in the short grass, possibly for fungi.

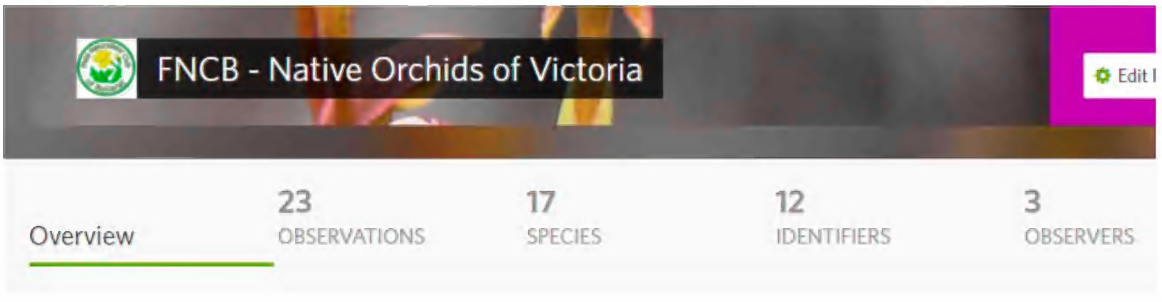
Bunnies beware!

More “Nat Stats”
From our iNaturalist Projects



Not only has young Indra clocked up a good number of birds, his well-honed photographic skills are also on display. This Buff-rumped Thornbill is in perfect focus - what fine detail!





Time to BioBlitz!

The "City Nature Challenge" was a four-day, worldwide BioBlitz where cities from across the globe competed to record the most observations and species within the allocated time. The focus of record collection was *iNaturalist*, the online nature database that we are currently using.

For the first time in 2020, four cities in Australia participated. Feedback from the participating locations was that it was a worthwhile activity, gathering many observations and biodiversity data within a short period. However, the event held in April is not the best time of the year for southern hemisphere cities compared with locations in the north of the globe where it is spring.
So, it has been decided to run a further BioBlitz in 2020 exclusively for the Southern Hemisphere and to include not just urban areas, but regional and rural locations like Ballarat.

This exciting event will be held from Friday 25th until the end of Monday 28th of September with survey areas based on local government boundaries. Each participating group can define its observation range as being one or more local government areas or parts thereof. FNCB members will have several areas to "blitz" including City of Ballarat and Golden Plains Shire. Participants will be encouraged (and expected) to use iNaturalist to record their observations, and to help you with that task, Rod Lowther from Geelong Field Nats, who is one of the drivers of this event, has offered to provide training.

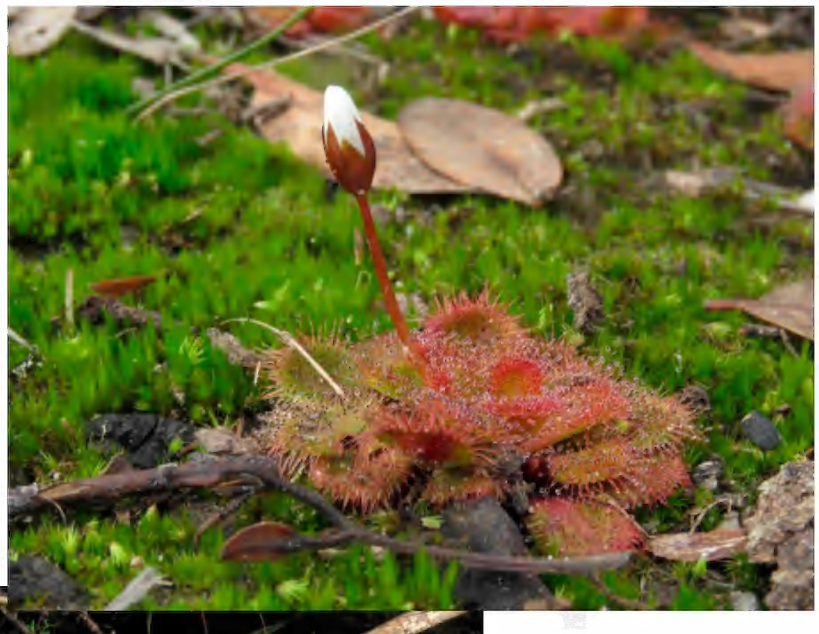
Rod will be on "Zoom" as our very first online guest speaker for the scheduled monthly meeting for August, Friday 7th. FNCB Members will receive an email with simple instructions on how to get Zoom on their computer or tablet, then an invitation to the session a day or so before the meeting. This is in the form of a link to the Zoom program which will give you access to the space where we can see each other and talk in real time.
The committee has been using this method for the last few meetings, but this is the first time we have attempted to hold a full club meeting online.

We hope you can join us for this special event!

Field Reports

Enfield State Park Winter Flowers

The Gregurke's had a trip to Enfield to enjoy the sunny day on Sunday, July 26. Since autumn Common Heath has been widespread with white, pink and red flowers. Other winter flowering plants are beginning to add colour in the landscape. These included Hedge Wattle *Acacia paradoxa* (right) Myrtle Wattle *Acacia myrtiflia*, Common Correa *Correa reflexa*, Common Hovea *Hovea heterophylla,* Scented Sundew *Drosera aberrans*, (below right) Common Beard Heath *Leucopogon virgatus* and Nodding Greenhood *Pterostylis nutans* (below left).



In a gully along the walking track to Enfield township, about 700m from Surface Point, we found a group of Oyster Bay Pine *Callitris rhomboidea*. On the east side of the gully there is an old stone chimney and a stone base of a boiler. Trees appear to be at least 20 years old from small saplings to 5+m high. I do not remember seeing them when we had Year 9 school camps out there up to the 1990's. They are not on the original Enfield plant list compiled by Pat Murphy which Emily has been updating. I wonder if these trees are a natural occurrence and if they grow in other parts of Enfield?

Roger Thomas has since confirmed this population had not been recorded by Stella Bedggood, Pat Murphy or Cliff Beauglehole, and noted that the fact that most of them appear to be less than about 20 years old is a good sign that they are introduced.

BOOK REVIEW

Chrysalis: Maria Sibylla Merian and the secrets of metamorphosis
Kim Todd (2007), Harcourt, New York.

This is a marvellous, rich story of an equally marvellous and talented woman from the dawn of scientific collection, observation and description – in the 18th century.
Maria Sibylla Merian was born in Frankfurt, Germany in 1647, one of many children to her mother and step-father, Jacob Marrel, a painter of flowers and still-life.
Merian was one of the first naturalists to observe insects directly and she avidly collected and observed live insects and created detailed drawings from an early age. In her time insects still had a reputation as "beasts of the devil" and the process of metamorphosis was largely unknown. While a handful of scholars had published empirical information on the insect, moth and butterfly life cycle, the widespread contemporary believe was that they were "born of mud" by spontaneous generation. Merian documented evidence to the contrary and described the life cycles of 186 insect species.

Merian had started to collect insects as an adolescent and kept a study journal. Aged 13 she raised silk worms and other insects. Her interest turned to moths and butterflies, which she collected and studied. While living in Nuremberg and Frankfurt Merian would travel to the surrounding countryside to search for caterpillar larvae. She recorded their food plants, the timing of their metamorphoses, and noted the behaviour she observed. It was not unusual for naturalists to illustrate their own research, but Merian was among the first professionally trained artists to illustrate her lifelong studies and observations.

She observed the life cycles of insects over decades, thus she made detailed drawings based on live insects in their natural environment or freshly preserved specimens. This set her apart from previous artist-naturalists such as Conrad Gesner. Her drawings and engraved plates depict moths laying eggs, or caterpillars feeding on leaves. By drawing live insects Merian could accurately depict colours, as preserved specimens lose colour. In the course of her insect studies she also recorded and painted the reproductive cycle of flowers, from bud through fruit.

In 1679 Merian published the first volume of a two-volume series on caterpillars, the second volume followed in 1683. Each volume contained 50 plates engraved and etched by Merian. These illustrations remain as great works of art as well as valuable science. Along with the illustrations Merian included a description of the insects, moths, butterflies and their larvae she had observed. *The Caterpillars' Marvelous Transformation and Strange Floral Food* was very popular in certain segments of high society as a result of being published in the vernacular. However, her work was largely ignored by scientists of the time because the official language of science was still Latin.

Merian was the first European women to independently go on a scientific expedition to Dutch Surinam in South America, trip which predated Alexander von Humboldt's expedition by 100 years.
In 1705, three years after returning from Surinam, she published *Metamorphosis insectorum Surinamensium*. It was first published at her own expense. Merian had returned from Surinam with sketches and notes. As the word spread among scholars in Amsterdam visitors came to view her paintings of exotic insects and plants. She noted "Now that I had returned to Holland and several nature-lovers had seen my drawings, they pressured me eagerly to have them printed. They were of the opinion that this was the first and most unusual work ever painted in America." Merian, with the assistance of her daughters Johanna and Dorothea put together a series of plates. Her art was used by Linnaeus and others to identify one hundred or so new species. Linnaeus used Merian's drawings to describe 39 plants and 56 animals , including the tarantula.

Merian was described as lively, hard working and courteous by a visiting scholar in 1711. Her house was full of drawings, insects, plants, fruit and on the walls were her Surinam watercolours.

After her death Merian became so renowned among biologists that a number of taxa, and two genera, were named after her. Two butterflies have been named after her, the common postman butterfly *Heliconius melpomene meriana* and a split-banded owlet butterfly *Opsiphanes cassina merianae*. The Cuban sphinx moth has been named *Erinnyis merianae*. A bug with no common name has been named *Plisthenes merianae*. A genus of mantises has been named *Sibylla*. In 2018 a rare butterfly, *Catasticta sibyllae* was named after her.

Author, Kim Todd has honoured the memory of this pioneering scientist and naturalist with a comprehensive and very readable volume that leaves the reader full of appreciation for Merian's life and work.

This Month—the return of the Guest Speaker!

Don't miss our special online event when we are joined, in a virtual way, by Rod Lowther from Geelong Field Naturalists. Rod will tell us about the Great Southern BioBlitz 2020 and how you can get involved.

* Learn about these exciting citizen science projects.
* Learn more about using *iNaturalist* to record observations of the natural world.
* Be inspired to make your own contribution.

We will email you a link and instructions on how to join the meeting on your computer from the comfort of your lounge-room/office/garage/bath or whatever.

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Meetings and Excursions are cancelled until further notice owing to the restrictions imposed by COVID-19

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